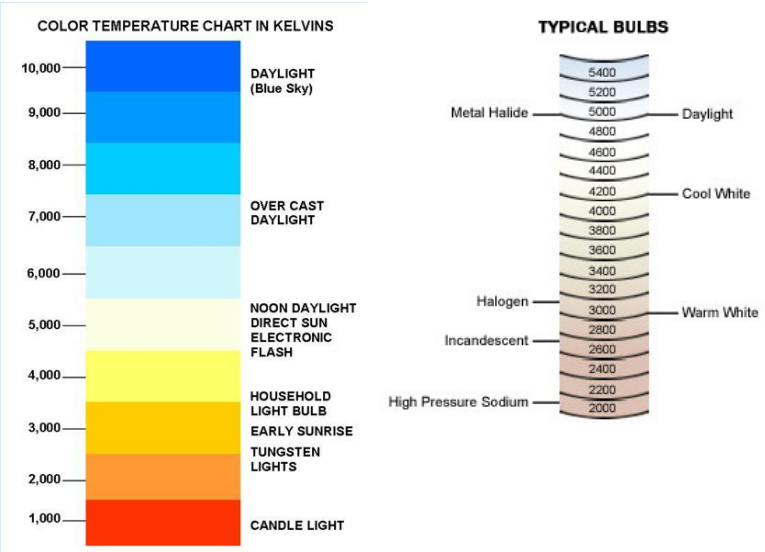


Mode

- Color mode determines what color method is used to display and print the image. Photoshop bases its color modes on the color models that are useful for images used in publishing.
- Color mode specifies…
  - The number of colors,
  - The number of channels…

    3 in RGB mode: Red Green and Blue
  - Which tools and file formats are available.

Lab Color

- Lab color is the intermediate color model Photoshop uses when converting from one color mode to another. It can describe more colors than RGB.
- Three components of Lab color:
  - Lightness or Luminosity
  - a-axis from green-red
  - b-axis from blue-yellow

Color Channel

- One of the building blocks of a particular color model, like Red in RGB.
- Using the Channel pallet, you can edit each channel independently.

Color Balance

- The correct relative amounts of red green and blue in an RGB digital image.
- "Perfect" light color for photography?
  - Color of sunlight on a sunny day at noon.
  - 5500° Kelvin
    - Higher values = bluer (built-in flash, overcast day)
    - Lower values = redder (incandescent light bulb)

Sources of "Bad" Color

1. Lighting that is not characterized at 5500 deg K
   - Tungsten (incandescent) lights are orange - reddish.
     3000K average

     You should change white balance on your camera.

   - Fluorescent lights are deficient in certain bands of red.

     Can use camera white balance. However…

     Best to use a lens filter made for fluorescent.

     (Digital cameras historically don't compensate as well with their fluorescent white balance.)

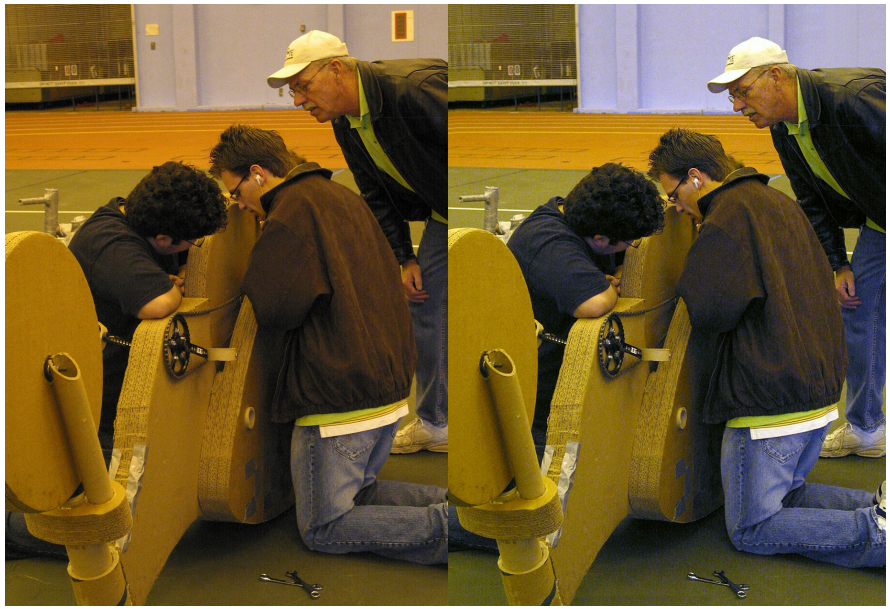
Sources of "Bad" Color

2. Mixed light sources. Avoid! (Like window + lamp)
   Better to use just one source and a reflector.
   Or use a big flash.
3. White balance adjustment being set wrong.
   "Auto White Balance" means camera is
   going to guess. Sometimes it does well.

Color Balance Tool

Sliders for cyan-red
magenta-green
yellow-blue

Note: check box for "Preserve Luminosity" keeps the overall tonal balance the same.



Best Color Balance Tools?

- Eyedropper tools found in Levels and Curves.
- Require something in the image that you can **identify** as **actually** black, white or a shade of gray. In RGB mode…
  - Black = 0 Red, 0 Green, 0 Blue.
  - White = 255 Red, 255 Green, 255 Blue. (100% ea)
  - Gray = equal values for Red Green Blue.

No Black, White, or Gray Hints?

Aligning the histogram shapes in the RGB channels **sometimes** improves color balance.

1. Open the Info or Histogram palette in RGB "Expanded View." Look for two histograms with a similar shape.
2. Keep your eye on the histogram while you adjust the Color Balance sliders, or Levels for one of the channels.

Auto Color Tool

Adjusts both contrast and color balance.
Creates a neutral average in the mid tones.
Sometimes seems to do way too much.

Note you can get to an Auto Color Correction Options dialog box. Click Options button in the Levels or Curves dialog box.
Useful with save-able settings.

Hue/Saturation/Vibrance

Hue shifts colors. Could turn crabgrass into bluegrass.

Saturation might help an image taken on a gray day look more colorful. Boosts the intensity of **all** colors.

Vibrance boosts the colors that need it the most. (And keeps skin tones from turning orange.)

Image >Adjustments >Match Color

Takes color palette from one image or a selected part of an image, and applies it to another image or selected part of an image. Select an specific area in both images if you wish.

Great for making a set of images match, as if they were taken at the same time.

Auto Contrast Tool

Adjusts all channels identically. This preserves the overall color relationship while making highlights appear lighter and shadows appear darker.

Auto Levels Tool

Maximizes the tonal range (maximizes contrast!) in each channel separately to produce a more dramatic correction.

This may change the color.

Before making color and tonal adjustments, consider…

- Work with a monitor that's accurate.
  - Monitors are not perfect. Also, ambient room lighting affects how images appear.
  - PS or OS can utilize a published "color profile" for your monitor. This compensates for a neutral balance.
  - Software such as Adobe's Gamma correction can help you adjust your monitor color balance.
  - Hardware systems are available to automatically adjust. Typically done in image-related businesses.

Before making color and tonal adjustments, consider…

- Working with 16-bits per channel rather than 8-bits per channel - like RAW files.

  8-bits = 16.7 million colors, 16-bits = 16.7 million^2 colors

  Any loss of image information from processing is more critical in an 8-bit image than a 16-bit image.

Before making color and tonal adjustments…

- Use adjustment layers rather than applying an adjustment directly to the image layer itself.

  Adjustment layers let you go back and make successive tonal adjustments without discarding data from the image layer.

Shadow/Highlight

Like a separate contrast for shadows and highlights.

Shadow expands the shadow range up in brightness, effectively creating contrast and brightness.

Highlight expands the highlight range downward, creating more contrast.